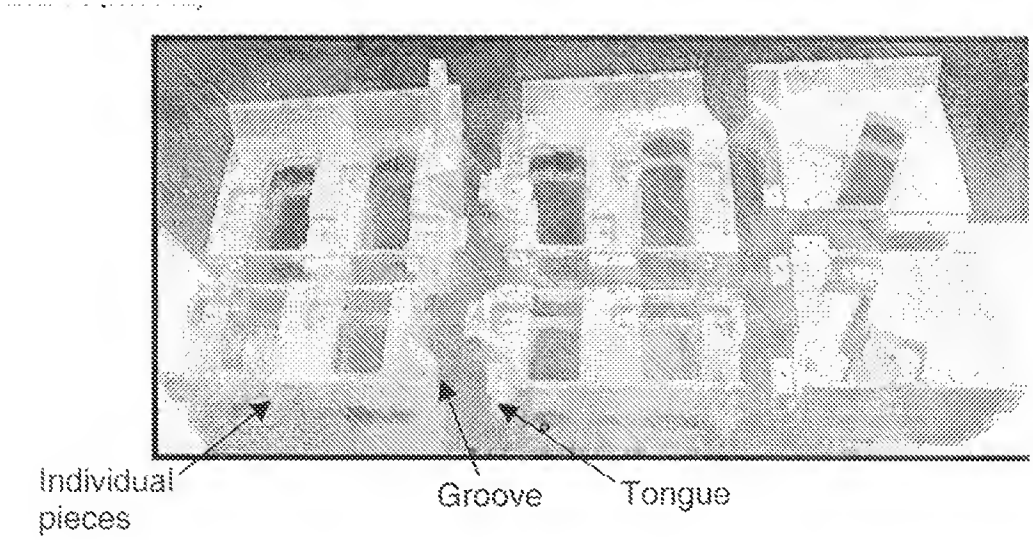
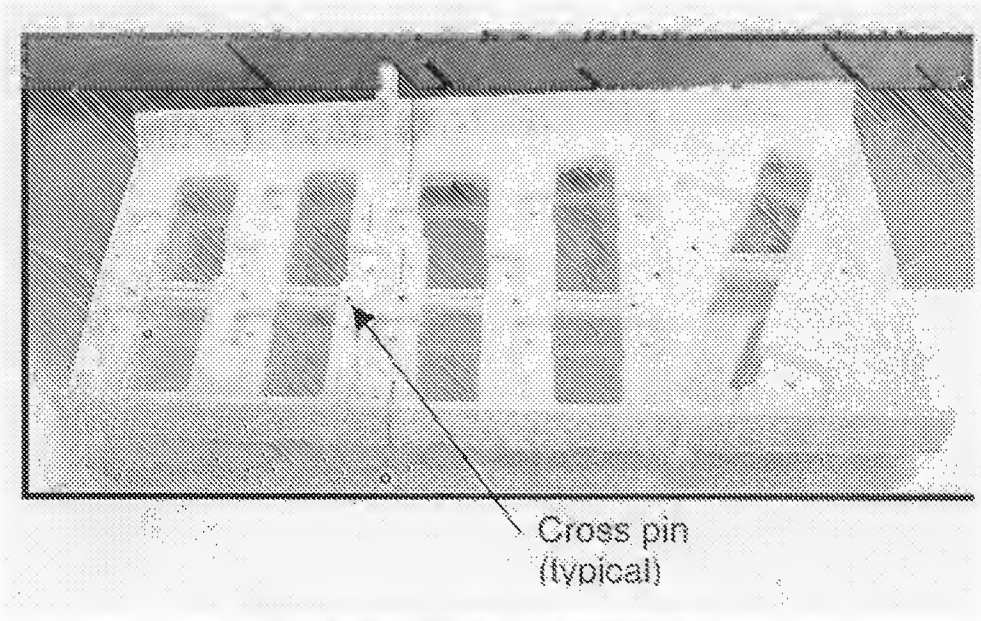
REMARKS

Claims 2-10, 18-22 and 41 are pending in this application. Of these claims, claims 18-22 are withdrawn from consideration. Claims 2-10 and 41 have been rejected. Independent claim 41 has been amended to expressly recite that the controller in the sintering system generates controller signals as a function of a predetermined tool design comprising a first tool section having a plurality of predetermined features and at least one other section that is grown separately and has a plurality of predetermined features and later coupled to the first section in a predetermined manner. Claim 6 has also been amended to replace the words "bolt bolting" with "pin aligning" as set forth in the specification at paragraph [0045]. No new matter has been added.

One advantage of the claimed system is that smaller individual sections prepared by laser sintering can be assembled together to form a larger tool benefiting from the use of the SLS materials and techniques. The applicants' system can be appreciated from the following:





The Examiner has rejected claims 2-6, 9-10 and 41 as being unpatentable over Feygin (35 U.S.C. 103(a)). Applicants respectfully request reconsideration of this rejection.

The Examiner relies on Feygin as disclosing "a sintering system comprising: a tool chamber enclosing a sinter material comprising a laser-fusible sinter powder (figure 2; column 6, lines 20-30); a laser system sintering said sinter material as a function of controller signals (column 5, lines 39-50; column 16, lines 33-40); a first tool section having a first plurality of

predetermined features (column 7, lines 60-67; column 13, lines 5-15); and at least one other section of said tool having a plurality of predetermined features (column 13, lines 1-25)." (Office Action, page 2, line 19 - page 3, line 2). The Examiner continues that "The object design may include such complex contours such as intricate channels, voids or surface irregularities, which are created in CAD (column 7, lines 60-67). The object design is first created by the designer using a preferred computer design program. The program then "slices" the object into discrete cross-sections. The cross-sections are then fed to a controller and accordingly, the powder or sheet material deposited onto the build platform is contoured per the cross-sectional shape (column 5, lines 25-35 and 40-50). The powder deposited onto the build platform may be sintered per the designated cross section wherein the bond between the sintered sections remains weak with the already formed layers or [sic] tool section (column 12, lines 40-65). Subsequent to sintering, the layers may be fully compressed and joined such that the object is subjected to impact or vibration (column 13, lines 5-20). Thus, the layers are each "tool sections" which are subsequently compressed and joined via the desired compaction or vibration." (office action, page 3, lines 7-21).

The Examiner admits that Feygin does not "teach that the tool sections comprise a joint component being adapted to couple to another section of the tool" as recited in independent claim 41, but considers this to be "an obvious modification and depends on the designer's object or tool design." She concludes that "it would have been obvious to one of ordinary skill in the art…to configure the system of Feygin, et al. such that the tool section(s) include a joint component adapted to couple to at least one other section of said tool, wherein the joint component is a bolt, section hole or tongue depending on the object design being created by the user." (office action, page 4).

Applicants submit that the Examiner's interpretation and reliance on Feygin as set forth in the Office Action and above is misplaced. For example, column 16, lines 33-40 has nothing to do with a laser sinter system sintering material as a function of controller signals; column 7, lines 60-67 has nothing to do with a first tool section having a first plurality of predetermined features; and column 7, lines 60-67 also relied on for the design features created in CAD, etc. does not teach how these features can be arrived at other than "by using the machine which uses one cutting tool - the laser."

The Feygin invention is directed to an apparatus and a method for manufacturing a three dimensional object from laminations formed in shapes required for assembly in a preselected sequence. Powder based materials and sheet materials may be used. The patentee, for example at column 6, discusses the limitations of the process where utilizing powders and namely the shrinkage resulting from internal stresses introduced into the object during the lamination forming step and proposes a number of steps to be taken to overcome this problem. In contrast, Applicants' system is directed to the use of powders and the process as set forth directly eliminates any such problems. In addition, the Feygin disclosure is absent any teaching of tool sections comprising a joint component adapted to couple another section of the tool as recited in independent claim 41. As can be seen from the illustrations set forth above, this is not an obvious modification and makes possible for the first time the creation of a detail too large to be grown in a single piece because of machine limitations. The fitting together of the sections to produce large objects measuring up to 10 feet is not obvious. The independent claim 41 now recites that the sections fit together in a predetermined manner, to thereby enlarge the size of the design.

Claims 2-6 and 9-10 depend from 41 and are directed to preferred features, which are also are not to be found in Feygin. The rejection of claims 2-6, 9-10 and 41 in view of Feygin should be withdrawn.

Claims 7-8 are dependent claims directed to the heat sink feature and the buffer feature, and have been rejected as being obvious over Feygin in view of Masters, the latter being relied on as teaching such features. The materials used by Masters are ballistic particles or continuous strands, for example, Litetak 375 is a resin used for the strands. The ballistic particles are disclosed in Pat. No. 4,665,492 or can be plaster, ceramic or metallic. Both particles and strands are involved in Masters. Laser sintering is not. The encapsulation taught at Col. 6, lines 26-30 relied on by the Examiner is taught by Masters for providing a support environment for the object being produced, and is not applicable to Feygin as suggested by the Examiner. Feygin does not teach or suggest Applicants' system and neither does Masters. The references taken singly or in any combination fail to teach the applicants' invention.

The rejection of claims 7-8 should be withdrawn.

It is submitted that the claims as now presented should be found to be allowable to applicants and notification to this effect is respectfully requested.

Respectfully Submitted
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